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YPLSF

October 1, 1990

Ms. Debbie Robinson
Superfund Divison
Environmental Protection Agency
1200 Sixth Ave
Seattle, Washington 98101

RE: Yakima Agicultural Research Laboratory Hot Spot Maps

Dear Ms. Robinson:

Per our conversation of September 20, enclosed is copy of an informal "hot spot" pesticide detection sketch map for YARLS. As stated in the summary of the cover letter, some contaminants are present. As it stands now, Dieldrin seems to be the biggest problem because of its low-action levels of 5 ppb. Look it over and let's plan to discuss it by week's end.

Your help in this matter is appreciated.

Sincerely,

ALVIN HUMPHREY
Area Safety and Health Manager

Enclosure

cc:
R. Abeyta, ACO, Alvany
N. Comstock, COTR, YARL, Yakima
G. Sundstrom, ES, SHPS/GSD, Greenbelt

ARS:PWAO:AHumphrey:vt:10/1/90

[redacted] 3.2 [redacted]

HONG W... & ASSOCIATES

P.O. Box 596, Lynnwood, Washington 98046 • (206) 774-0106

LETTER OF TRANSMITTAL

DATE 8-22-90	JOB NO. 90042
ATTENTION	
RE	

TO GEORGE SUNDSTROM
USDA/ARS
6303 Ivy Lane Rm. 639
Beltsville, md. 20770-1433

GENTLEMEN:

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via ________ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ ________

COPIES	DATE	NO.	DESCRIPTION
1	8-21-90		Pesticide Summary letter / Map - YARL

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval

☑ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints

☐ For review and comment ☐ ________

☐ FOR BIDS DUE ________ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS ________

→ FAX'D COPY 8-22-90 @ 16:30 EDT.

COPY TO S. Cohen, G. Rosenthal

SIGNED: D. Geller

If enclosures are not as noted, kindly notify us at once.

HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

August 21, 1990

Mr. George Sundstrom
USDA/ARS
6303 Ivy Lane, Room 639
Beltsville, MD 20770

Re: Pesticide Detections at YARL

Dear George:

Pursuant to your request, Hong West & Associates has prepared informal "hot spot" pesticide detection sketch maps for your use. One map shows locations or DDT detections, calculated as DDT_r - the summation of DDT + DDE + DDD, as recommended by Stuart Cohen (see attached letter). The new action level for DDT_r (830 ppb for carcinogenic effects) is exceeded below the former washdown pad (all four samples) and below the former tank (1 sample of 4). None of the tank sidewall samples exceeded the new DDT_r action level.

The second map summarizes other pesticide detections at YARL. While pesticide detections were numerous, there were only three with calculated action levels. Endosulfan I + II were detected, but at concentrations well below the 4250 ppb action level. Heptachlor was detected once (in the drainfield) at 1.5 ppb, four orders of magnitude below the action level of 42500 ppb. Dieldrin was detected in one of two selected background areas and all the other areas sampled at concentrations exceeding the action level of 5 ppb for carcinogenic effects.

In summary, based on existing and revised action levels for this site, it appears that the soil contaminants of concern are:

DDT_r - below washdown pad and septic tank

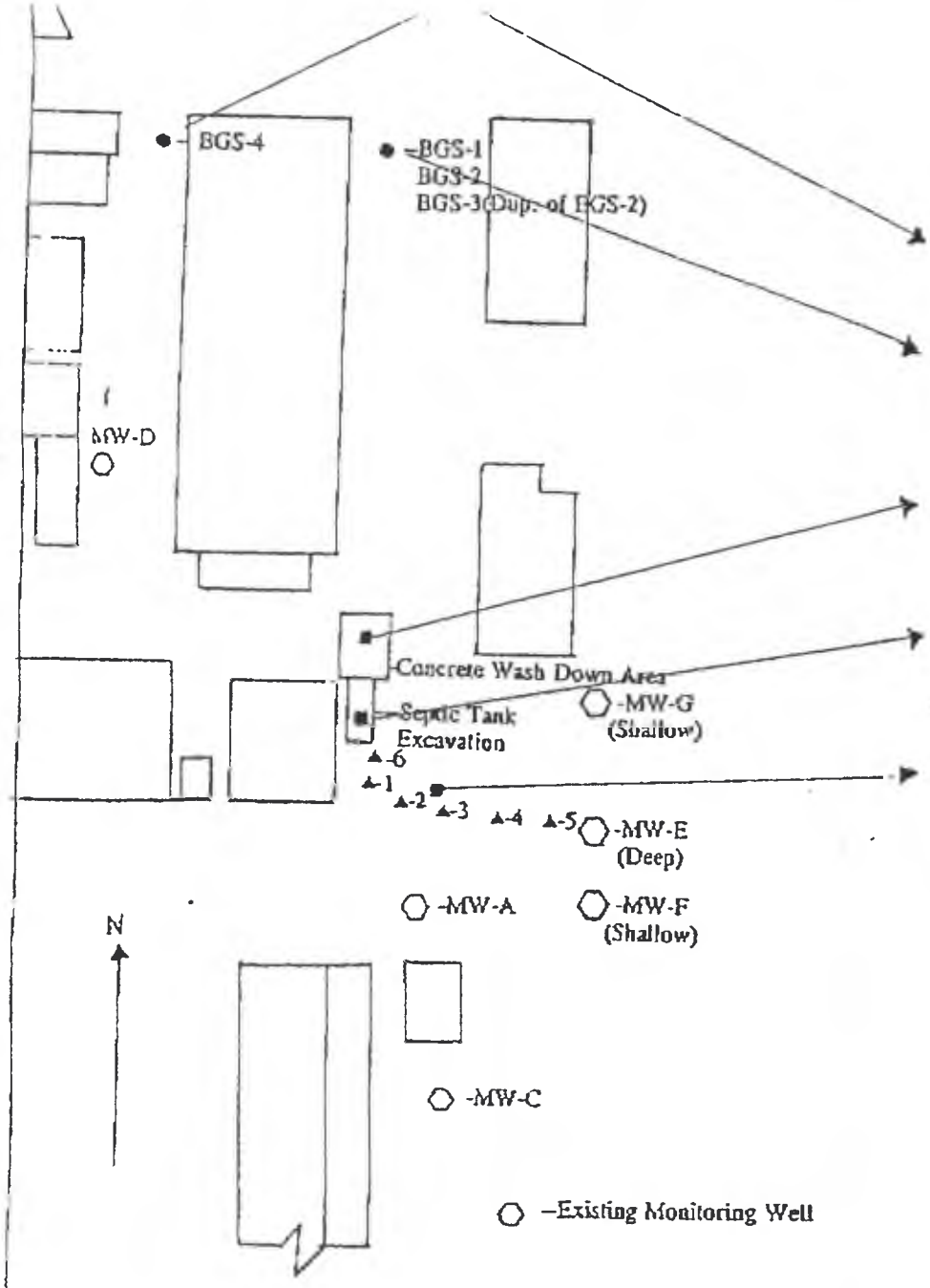
Dieldrin - in all areas sampled, except BGS-4

I trust this information will satisfy your interim data needs at present. Should there be any questions, please do not hesitate to contact me or Larry West.

Sincerely,

Douglas Geller
Senior Hydrogeologist

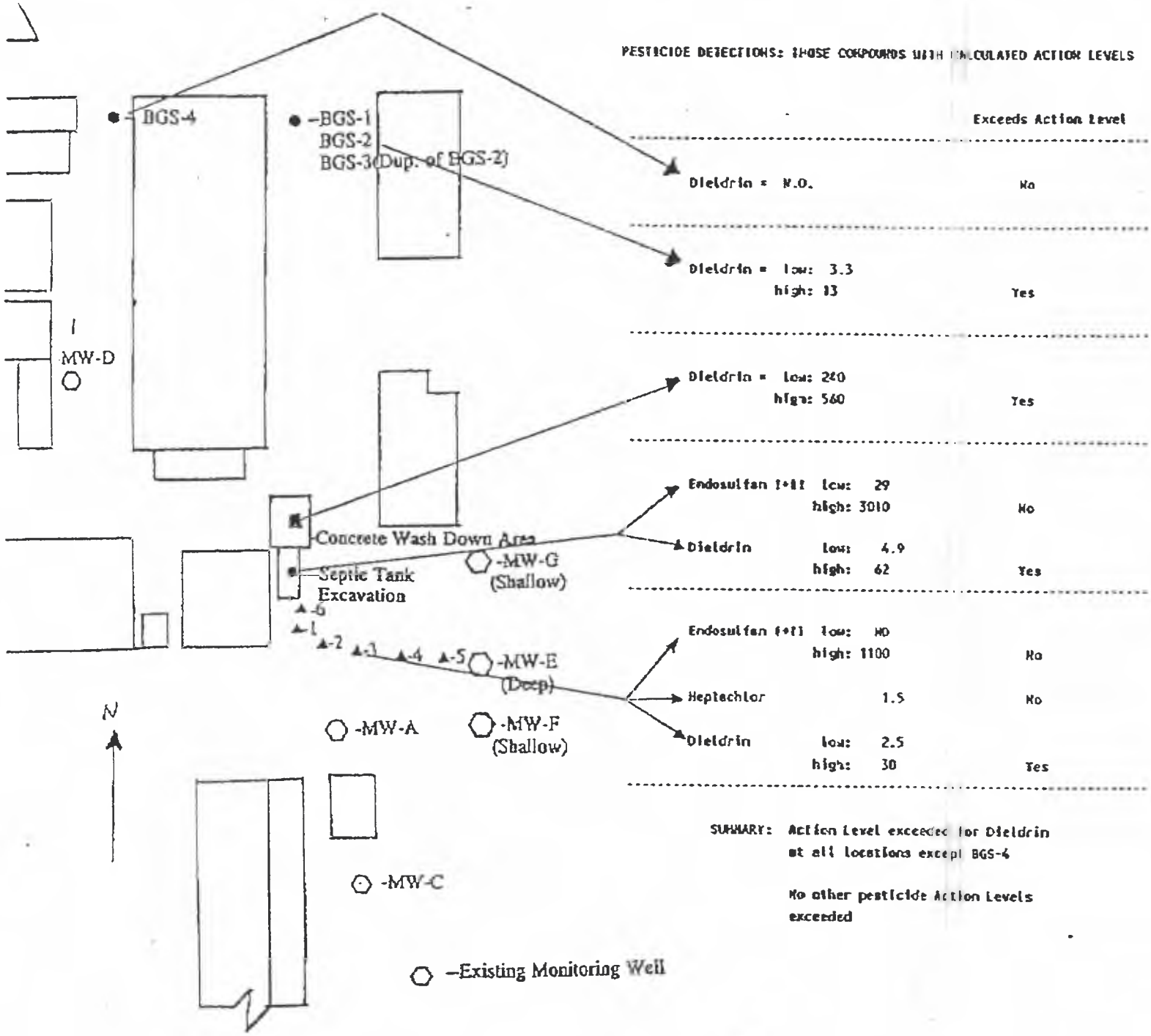
cc: Stuart Cohen
Gerritt Rosenthal



DDT_F = DDT + DDE + DDD	Sampling Location	No. of Samples	No. Exceeding Action Level
Concentrations ppb			
DDT_F .....(ND)	Background	1	0
DDT_F = low: 250 high: 300	Background	3	0
DDT_F = low: 840 high: 8500	Washdown Pad	4	4
DDT_F = low: 9.8 high: 1420	Septic Tank Pit	8	1
DDT_F = low: 3.7 high 175	Drainfield	6	0

SUMMARY: New Action Level for DDT_F = 250 · .3 = 830 ppb

This level exceeded only in Septic Tank Pit and Washdown Pad areas



PESTICIDE DETECTIONS: THOSE COMPOUNDS WITH CALCULATED ACTION LEVELS

		Exceeds Action Level
Dieldrin = N.D.		No
Dieldrin =	low: 3.3 high: 83	Yes
Dieldrin =	low: 240 high: 560	Yes
Endosulfan I+II	low: 29 high: 3010	No
Dieldrin	low: 4.9 high: 62	Yes
Endosulfan I+II	low: ND high: 1100	No
Heptachlor	1.5	No
Dieldrin	low: 2.5 high: 30	Yes

SUMMARY: Action Level exceeded for Dieldrin at all locations except BGS-4

No other pesticide Action Levels exceeded

90042.T62

	ACTION LEVELS • YARL (ppb)
Chlorpyros	255000 (c)
DDT	830 (c) 141666 (n)
Dieldrin	5 (c)
Disulfoton	3400 (c)
Endosulfan	4250 (c)
Endrin	26000 (c)
Heptachlor	42000 (c)
Heptachlor Epoxide	9 (c) 1000 (n)
Lindane	25500 (c)

(c) denotes level calculated for carcinogenic toxicity effects

(n) denotes level calculated for non-carcinogenic effects

BIOSPHERICS® INCORPORATED

August 20, 1990

Larry West, Vice President
Hong West & Associates
P.O. Box 596
Lynnwood, Washington 98046

RE: XARL Action Levels

Dear Larry:

The purpose of this letter is to revise the DDT soil action level, discuss the expression of DDT residues, and add new action levels to those calculated in our May 31 Project Plan (pp. 9-11).

DDT

The carcinogenic potency factor, Q*, for DDT was stated to be 0.34×10^1 $(mg/kg/day)^{-1}$ in the Project Plan. Although this apparently correctly quoted the EPA Reference Dose Tracking Report (8/89), it was incorrect. According to a recent Integrated Risk Information System (IRIS) report and verbal confirmation with an EPA/OPP scientist, the Q* should be 0.34 $(mg/kg/day)^{-1}$. Thus the soil action level calculated on that basis should be 250 ppb instead of 25 ppb. (Note that EPA is standing behind the category B_2 classification of DDT as a "probable human carcinogen," in spite of some controversy on the subject of mouse liver tumors. This issue will probably not be resolved until a Conservation Foundation Report is issued in one or two years (?).)

We should also propose to EPA that DDT's soil action level be increased to 830 ppb to allow for incomplete desorption of DDT from soil and incomplete absorption through the gut. This number was derived by dividing 250 ppb by a sorption correction factor of 0.3. This is the correction factor used by EPA for its PCB-in-soil risk assessment (Hwang, Falco & Nauman; "Development of Advisory Levels for Polychlorinated Biphenyls (PCBs) Cleanup"; EPA/600/S6-86/002; June 1987 (also in two other references)). It is reasonable to use PCBs as a surrogate class for DDT for the following reasons:

- molecular weights and sizes are similar;
- both contain two chlorinated phenyl rings;
- water solubilities of PCBs range between 0.03 ppb and 240 ppb, whereas DDT's water solubility is between 1 ppb and 5 ppb;

- both are neutral, non-polar molecules tightly bound to organic carbon (e.g. Environmental Dynamics of Pesticides, Haque and Freed, eds.; Plenum Press; 1975).

Thus a good case can be made to divide both DDT action levels--for carcinogenic and noncarcinogenic effects--by 0.3.

However, it is very important to consider the recommendation in my August 2 letter regarding expression of DDT residues. EPA and others will probably consider DDT and its two analogs--DDD and DDE--to have equal toxic potency. Therefore we should sum all three concentrations when considering the need for remediation. Standard convention among pesticide scientists is to refer to DDT+DDD+DDE as DDTr, and I recommend we adopt the same convention.

Thus, if my recommendation are followed, the DDTr action level will increase significantly but the effective concentrations will increase as well.

I recommend we sum the DDTr residues and compare them against the 250 ppb and 830 ppb action levels ASAP. A map of hot spots would be nice, and would aid the client. Tom Durborow could support you in these tasks if you wish.

Other Pesticides

These pesticides were detected in soil and were not included in the original short list of proposed action levels. Calculations below are done in accordance with the factors and assumptions stated on pp. 10-11 of the Project Plan.

Endrin. RFD = 3×10^{-4} mg/kg/day

Soil action level = 26 ppm

Heptachlor. $Q^* = 4.5$ $(mg/kg/day)^{-1}$
RFD = 5×10^{-4} mg/kg/day

Action level based on carcinogenic effects = 19 ppb
Action level based on noncarcinogenic effects = 42 ppm

Heptachlor epoxide. $Q^* = 9.1$ $(mg/kg/day)^{-1}$
RFD = 1.3×10^{-5} mg/kg/day

Action level based on carcinogenic effects = 9 ppb
Action level based on noncarcinogenic effects = 1 ppm

Dieldrin. $Q^* = 1.6 \times 10^{1}$ $(mg/kg/day)^{-1}$
RFD = 5×10^{-5} mg/kg/day

Action level for carcinogenic effects = 5 ppb
Action level for noncarcinogenic effects = 4 ppm

All of the RFDs and Q*s above were obtained from IRIS, which means that EPA will stand behind them. These IRIS numbers were not available for phorate, methoxychlor, and delta-BHC. We are trying to obtain information on these chemicals from other information sources.

If you have questions on this letter while I am on travel, please call Tom. I will return Thursday evening, August 23.

Sincerely,

for

Stuart Z. Cohen, Ph.D.
Manager, Ground Water And
Environmental Programs
Laboratory Division

SZC:rmp
697GW